

October 28, 2020

Darien Environmental Protection Commission  
Darien Town Hall  
2 Renshaw Road  
Darien, CT 06820

Re: Wetland and Watercourse Assessment  
BMW of Darien  
136 & 140 Ledge Road, Darien, Connecticut

Dear Members of the Environmental Protection Commission:

William Kenny Associates LLC (WKA) investigated the property located at 136 & 140 Ledge Road in Darien, Connecticut to inventory and assess existing and proposed wetland and watercourse conditions related to the demolition, reconstruction and expansion of the service building, the construction of a proposed addition to showroom and office building, the construction of a car wash and related site improvements. The following letter includes the methods and results of this investigation. A wetland delineation was conducted in November 2019 and additional field investigations were conducted in November 2019 and February 2020. The assessment of proposed conditions is based on a review of the following:

- The *Site Engineering Report*, prepared by Redniss & Mead, dated October 28, 2020.
- The *Zoning Site Plan* drawing, prepared by Redniss & Mead, dated October 28, 2020.
- The *Existing to Proposed Color Plan*, prepared by Redniss & Mead, dated October 28, 2020.
- The *Planting Plan* drawing, prepared by William Kenny Associates LLC., dated October 28, 2020.

In summary we find that the proposed project will not result in adverse impacts to inland wetlands and watercourses or their capacity to perform wetland and watercourse functions. Other than enhancement activities proposed for the existing manmade stormwater wetland, no activities are proposed within the wetlands or watercourses and, as such, no direct adverse impacts will occur. Control measures, such as a soil erosion and sediment control plan and a stormwater management plan, are proposed during and following construction to avoid and minimize impacts to the remaining wetlands and regulated upland review areas. A stormwater wetland and buffer enhancement plan is proposed to control invasive vegetation and revegetate with native meadow vegetation within the existing stormwater basin.

### ***Existing Site Conditions***

The approximate 3.02-acre commercial property is located at 136 & 140 Ledge Road in Darien, Connecticut, and is owned by BMW of Darien. Ledge Road is southeast of the property, Whole Foods Market and a condominium complex are to the north and the Darien Department of Public Works and the Darien Recycling and Refuse Center are west of the property. In addition to the two parcels owned by the Applicant, the Applicant leases an approximate 0.26-acre parcel from the Town of Darien. This parcel is adjacent to the southwestern property boundary. No improvements are proposed on this parcel and, as such, the parcel is not included in our assessment. Existing site improvements at 136 & 140 Ledge Road include a showroom and office building, service bays, garage, shed and large areas of asphalt drives and parking areas. The property is serviced by water and sewer lines for the Town of Darien. Historic site development resulted in the property being situated at a low point surrounded by large retaining walls along northern and southern sides of the property. The majority of surface and subsurface water on the property flows in one of two directions: west and east. Water flowing west is collected in catch basins and flows offsite to Cummings Brook via subsurface piping. It does not appear that any measures exist to treat water quality or manage peak flows rates before the water enters Cummings Brook. Cummings Brook extends and flows north to south in close proximity to the western property boundary. Water flowing east is collected in catch basins and a manmade stormwater detention basin that provides water storage and treatment. From the basin, the water is directed towards the public drainage system beneath Ledge Road via subsurface pipes. Ultimately, water from Cummings Brook and the public drainage system flows into Stony Brook southwest of the property, which flows south into Long Island Sound.

Approximately 81 percent of the property is covered by impervious surfaces. The remaining areas are primarily composed of areas of lawn with some ornamental shrubs and shade trees. These areas are islands within the parking lots and a landscaped area in southeastern portion of the property. Landscape trees are primarily red maple and eastern white pine and ornamental shrubs include burning bush, forsythia and juniper. There are two small naturalized areas along the southeastern and western property boundary. The naturalized areas are part of larger wooded areas that continue offsite; however, the onsite encroachment of these areas primarily consist of invasive vegetation, heavily dominated by Japanese knotweed. Invasive vines are also present, including oriental bittersweet and porcelainberry.

Two inland wetland and watercourse systems are onsite: one in the northwestern portion of the property and one in the southeastern portion of the property. The southeastern system is a manmade stormwater wetland that captures and treats stormwater from impervious surfaces in the eastern portion of the property. The stormwater wetland drains towards onsite subsurface pipes connecting the existing catch basins, ultimately flowing to the Ledge Road public drainage system. Invasive Japanese knotweed is dense within the wetland and little to no native vegetation was observed within the system. Invasive vines such as oriental bittersweet and porcelainberry are also within the system. Wetland soils are primarily poorly drained disturbed soils formed from human altered deposits.

The northwestern system is a relatively very small portion of a woodland wetland fringe that borders the offsite Cummings Brook. Cummings Brook and the wetland fringe are part of a

larger system that continues offsite in close proximity to the western property boundary. The wetland is to the west of a retaining wall and a chain link fence demarcates the existing property improvements from the portion of onsite wetland. The small onsite portion of the wetland fringe is primarily composed of dense Japanese knotweed and vines such as oriental bittersweet and porcelainberry. Wetland soils are primarily poorly drained soils that formed from alluvially transported sediments.

The following tables provides the primary characteristics of the wetland and watercourse systems.

**Table One: Wetland & Watercourse Primary Characteristics**

SYSTEM	PRINCIPAL SOURCE(S) OF HYDROLOGY	WATER TABLE TYPE	HGM CLASSIFICATION	USFWS CLASSIFICATION	VEGETATION COVER TYPE(S)
STORMWATER WETLAND	STORMWATER INTERCEPTION	PERCHED	PALUSTRINE	PEM2x <sup>1</sup>	MEADOW
FRINGE OF WOODLAND WETLAND	SURFACE & GROUND WATER INTERCEPTION	APPARENT	PALUSTRINE	PFO1 <sup>2</sup>	WOODLAND

<sup>1</sup>Palustrine (P); Emergent (EM); Nonpersistent (2); Excavated (x)

<sup>2</sup>Palustrine (P); Forested (FO); Broad-Leaved Deciduous (1)

The primary functions of the manmade stormwater wetland are groundwater recharge, water quality modification and storm water and flood water storage which are being provided at a moderate to high capacity. However, the capacity of the system to contribute to the abundance and diversity of wetland flora and fauna is diminished due to the dominance of invasive vegetation. If left uncontrolled, the invasive vegetation will continue to outcompete native vegetation and will increase in abundance and density overtime. The onsite portion of the Cummings Brook wetland fringe is relatively very small. As such, capacity of the wetland to perform wetland functions relatively low. The prevalence of invasive vegetation within the system reduces the system's ability to contribute to the abundance and diversity of wetland flora and fauna.

### ***Proposed Site Conditions***

The proposed project involves the demolition, reconstruction and expansion of the service bays into a larger service building, the construction of an addition to the existing showroom and office building, the construction of a car wash and associated site related improvements. Existing water and sewage lines will continue to service the property. Stormwater management improvements are included in the proposed project to manage stormwater runoff at a higher level than existing conditions through the incorporation of additional BMPs and there will be an overall reduction of onsite impervious coverage by approximately 3,450 square feet. Additionally, a stormwater wetland and buffer enhancement plan is included to enhance the existing stormwater wetland by

removing and controlling invasive vegetation and replanting with native meadow vegetation. Native trees and shrubs will be planted in the northwestern portion of the property, within the RURA of the Cummings Brook wetland and watercourse system. The remainder of the landscaped and naturalized portions of the property will be supplemented with native trees, shrubs and groundcovers.

### ***Potential Impacts and Mitigation***

Land development has the potential to cause short- and long-term as well as direct and indirect impacts to wetlands and watercourses from activities such as vegetation clearing, soil filling, excavation or pollution of stormwater. The proposed site improvements are designed to minimize short-term and long-term adverse impacts. Various BMPs are included to avoid and minimize impacts during and after construction, including a soil erosion and sediment control plan and a stormwater management system.

The proposed stormwater wetland and buffer enhancement plan will result in direct long-term benefits and minor short-term impacts to the manmade stormwater wetland. The plan proposes to remove and control the dominant invasive vegetation within the system through targeted cutting, herbicide applications and root extraction. Following removal activities, the stormwater wetland will be replanted with a native wetland meadow seed mix. A long-term management plan is included to control invasive vegetation following the enhancement activities. The removal and replacement of invasive vegetation with native vegetation increases the ecological value of the system by providing suitable habitat for wildlife including birds and insects. Other than the proposed enhancement activities, no activities are proposed within the remaining inland wetlands and watercourse and as such, no direct impacts will occur.

In the short-term, wetlands can be indirectly impacted from sediment-laden stormwater from the proposed site improvement construction activities. For this project, the disturbance area is within the same footprint as existing pavement and structures and, due to historic site development, the project area is situated at a low point surrounded by large retaining walls along northern, southern and western sides of the property. As such, the potential for soil erosion and sedimentation impacts are relatively low. The project engineer has included a construction phasing plan and a sediment and erosion control plan in accordance with the 2004 *Connecticut Guidelines for Erosion and Sediment Control*. The phasing plan will minimize the area and duration of earth disturbance activity at a given time by dividing construction activity into five phases. The first two phases of construction include the improvements proposed in the northwestern portion of the property, which includes most of the required earthwork. After construction is complete in this area, remaining disturbed areas will be stabilized with permanent or temporary vegetation. The remaining three phases involve the proposed addition and the showroom and office building remodel, which requires significantly less earth disturbance. Inlet protection for drainage features will be installed throughout the property prior to phase one and will be maintained through the completion of the project. An anti-tracking pad is proposed at the entrance of the northwestern lot and silt fencing backed by haybales is proposed along the northern and western property lines. The silt fence and haybales will also provide protection to

the onsite portion of wetland where the proposed pavement will be closer to the wetland than it is today.

In the long-term, and if not properly mitigated, wetlands and watercourses can be indirectly adversely impacted by stormwater runoff that flows from buildings, pavement and vegetated surfaces. To meet requirements set forth by the Town of Darien, the proposed stormwater management capacity was calculated to accommodate a theoretical impervious coverage increase of approximately 46,000 square feet. However, the project plan provides a reduction to onsite impervious coverage by approximately 3,450 square feet, in addition to maintaining existing drainage patterns and incorporating BMPs to manage stormwater runoff at a higher level than existing conditions. This will primarily be achieved by incorporating three subsurface infiltration systems in the western portion of the property to collect and treat runoff from impervious surfaces. Associated oil and grit separators are proposed with each infiltration system to treat water quality and protect the long-term functionality of the systems. The separators and infiltration systems are significant improvements as compared to existing conditions, as there are no existing BMPs in the western portion of the property to provide water storage or treatment and runoff from the site flows directly into Cummings Brook. Although the proposed pavement in this portion of the property will be closer to the onsite wetland than it is today, the water falling on this portion of the pavement will be effectively managed and treated through the proposed BMPs. In the eastern portion of the property, the outflow pipe of the stormwater wetland will be modified to retain a larger volume of water. This will allow the stormwater wetland to provide addition storage, treatment and groundwater recharge. Throughout the site, catch basins will be improved with sumps and bell traps to capture sediment and pollutants as water enters the subsurface piping system. Overall, the project meets or exceeds the Town of Darien requirements for water quality volume and peak runoff rates.

In addition to a stormwater management system, a native planting plan is proposed for the property which includes a mix of native trees, shrubs and groundcovers. A native wildflower meadow is proposed along the northern property line and native trees and shrubs are proposed throughout the landscaped portions property to supplement and/or replace existing vegetation. The native vegetation provides ecological value by providing habitat to wildlife such as birds and insects. The wetland buffer of the northwestern wetland will also be enhanced through the removal of lawn and invasive vegetation between the proposed pavement and the onsite portion of the wetland. Native northern bayberry is proposed revegetate the area, which will provide additional protection to the wetland by establishing a native vegetated buffer.

#### ***Wetlands Functions and Values: Existing versus Proposed Conditions***

A comparison of the capacity of the onsite wetlands and watercourse to perform typical wetland and watercourse functions before and after the completion of the proposed site improvements was performed. This comparison was generated by evaluating the existing wetland functions and anticipated wetland functions after construction of the project within the context of typical wetlands functions and values as established by Normandeau Associates, Inc. in the 1998 publication, *A Rapid Procedure for Assessing Wetland Functional Capacity*.

The comparison of the existing wetland and watercourse functions and the anticipated wetland and watercourse functions following implementation of the proposed project revealed that the wetland functions will be improved or maintained from the existing condition. The stormwater wetland will have an improved capacity to provide groundwater recharge, stormwater storage and water quality modification due to the outflow pipe modification and the proposed stormwater wetland enhancement activities will improve the functional capacity of the system to contribute to wetland flora and fauna. The functional capacity of the fringe of woodland wetlands will be maintained. A summary of this evaluation is presented in the table below.

**Table Two: Wetland Functions: Existing versus Proposed Conditions**

WETLAND FUNCTIONS	RELATIVE CAPACITY TO PERFORM FUNCTION		FUNCTIONAL DETAILS
	EXISTING	PROPOSED	
STORMWATER DETENTION BASIN WETLAND			
Modification of Groundwater Discharge	LOW	LOW	Unchanged - The capacity of the stormwater wetland to influence the amount of water moving from ground water to surface water will not be altered with the proposed project.
Modification of Groundwater Recharge	MODERATE- HIGH	HIGH	Improved - The capacity of the stormwater wetland to influence the amount of water moving from surface water to ground water will be improved due to the modification of the outflow pipe from the basin which will allow the basin to retain a larger water volume.
Storm and Flood Water Storage	MODERATE- HIGH	HIGH	Improved - The capacity of the stormwater wetland to store floodwater will be improved due to the modification of the outflow pipe from the basin which will allow the basin to retain a larger water volume.
Modification of Water Quality	MODERATE- HIGH	HIGH	Improved - The capacity of the stormwater wetland to modify water quality will be improved due to the modification of the outflow pipe from the basin which will allow the basin to retain a large water volume.
Export of Detritus	LOW	LOW	Unchanged - The capacity of the stormwater wetland to export organic detritus from the wetland to the adjacent and downstream aquatic ecosystems will not be altered with the proposed project.
Contribution to Abundance and Diversity of Wetland Vegetation	MODERATE- LOW	MODERATE	Improved - The stormwater wetland's capacity to contribute to the abundance and diversity of wetland flora will be improved due to the removal of invasive vegetation and establishment of native vegetation within the system.
Contribution to Abundance and Diversity of Wetland Fauna	MODERATE- LOW	MODERATE	Improved - The stormwater wetland's capacity to contribute to the abundance and diversity of wetland fauna will be improved due to the removal of invasive vegetation and establishment of native vegetation within the system.

<b>FRINGE OF WOODLAND WETLANDS</b>			
<i>Modification of Groundwater Discharge</i>	<b>LOW</b>	<b>LOW</b>	<i>Unchanged - The capacity of the wetland to influence the amount of water moving from ground water to surface water will not be altered with the proposed project.</i>
<i>Modification of Groundwater Recharge</i>	<b>MODERATE-LOW</b>	<b>MODERATE-LOW</b>	<i>Unchanged - The capacity of the wetland to influence the amount of water moving from surface water to ground water will not be altered with the proposed project.</i>
<i>Storm and Flood Water Storage</i>	<b>MODERATE</b>	<b>MODERATE</b>	<i>Unchanged - The capacity of the wetland to store floodwater will not be altered with the proposed project.</i>
<i>Modification of Water Quality</i>	<b>MODERATE</b>	<b>MODERATE</b>	<i>Unchanged - The capacity of the wetland to modify water quality will not be altered with the proposed project.</i>
<i>Export of Detritus</i>	<b>MODERATE</b>	<b>MODERATE</b>	<i>Unchanged - The capacity of the wetland to export organic detritus from the wetland to the adjacent and downstream aquatic ecosystems will not be altered with the proposed project.</i>
<i>Contribution to Abundance and Diversity of Wetland Vegetation</i>	<b>LOW</b>	<b>LOW</b>	<i>Unchanged - The wetland's capacity to contribute to the abundance and diversity of wetland flora will not be altered with the proposed project.</i>
<i>Contribution to Abundance and Diversity of Wetland Fauna</i>	<b>MODERATE-LOW</b>	<b>MODERATE-LOW</b>	<i>Unchanged - The wetland's capacity to contribute to the abundance and diversity of wetland fauna will not be altered with the proposed project.</i>

***Conclusions***

We completed an assessment of existing and proposed wetland and watercourse conditions related the proposed commercial development improvements at 136 & 140 Ledge Road in Darien, Connecticut. Based on this assessment, we conclude that the proposed project will beneficially impact the manmade stormwater wetland and there will be no adverse impacts to remaining inland wetland and watercourse systems on or offsite. Thank you for your consideration of this information. If you should have any questions or comments, please do not hesitate to contact us at (203) 366-0588.

Sincerely,

A handwritten signature in black ink, reading "William L. Kenny". The signature is fluid and cursive, with the first name being the most prominent.

William L. Kenny, PWS, PLA  
Principal

A handwritten signature in black ink, reading "Carolyn Matthews". The signature is cursive and elegant, with the last name being the most prominent.

Carolyn Matthews  
ESA Certified Ecologist  
ISA Certified Arborist